

INTRODUCTION: DESERTIFICATION AND SECURITY

Perspectives for the Mediterranean Region

William G. Kepner

U.S. Environmental Protection Agency, Office of Research and Development, P.O. Box 93478, Las Vegas, Nevada, USA, 89193-3478 (kepner.william@epa.gov)

This book focuses on two basic concepts: *security* and *desertification* in the Mediterranean Region and their linkages. It emerged from a single meeting of the “Workshop on Desertification in the Mediterranean Region. A Security Issue” held in Valencia, Spain on 2-5 December 2003, which was sponsored by the NATO Science Committee and NATO Committee on the Challenges of Modern Society.

The workshop was organized into five special sessions dealing with consequences of degradation on social, economic, and political issues (especially food security and human migration); soil and vegetation monitoring techniques and programs; water resources and management; and forecasting techniques and advanced technologies. The workshop provided a multilateral forum for cooperation, information exchange, and dialogue among the environmental, development, foreign and security policy communities within the Mediterranean Region and the chapters that follow reflect the important presentation and discussion of that engagement.

Desertification is recognized as a process of land degradation in arid, semiarid, and dry subhumid areas that is the result of several factors, including human activities and climate variation (UNCCD, 1999). Desertification is a worldwide phenomenon estimated to affect 40 million km² or approximately one-third of the Earth's surface area and 1 billion people in over 110 countries (or about one-fifth of the human population of the world) (UNCCD Secretariat, Fact Sheet 1, 2002). For the purposes of the workshop and this book, desertification was treated as an issue with cultural, political, social, and economic importance versus solely as an environmental problem. The purpose of the workshop became twofold: 1) to open discussion on the issue of linking security to environmental condition throughout the Mediterranean Region and to explore likely impacts on the social, economical, and political dimensions of human society and 2) to evaluate the consequences of desertification to security both in regard to the ability of the environment to provide important ecological goods and services and relative to social and political instability (“Desertification in the Mediterranean Region: A Security Issue,” NATO-CCMS and Science Committee Workshop on Desertification in the Mediterranean Region. A Security Issue, 2003). To undertake this discussion required the recognition that there are remarkable demographic differences between the North and South Mediterranean and thus there are different socioeconomic disturbance gradients as well as climatic gradients that affect environmental condition, sustainability of resources, employment, poverty, migration, and ultimately, security.

1. THE GEOGRAPHICAL SETTING

Quite easily there are a number of definitions on what constitutes the Mediterranean Region and subsequently the definitional boundaries vary from a climatic zone, a sea, a political border, and even a biogeographical area corresponding to the distribution of the olive (*Olea sp.*) (Brauch, H.G., 2003). Human perception of the environment can take any one of a variety of social, economic, scientific, and political constructs depending on purpose and need. For the purpose of the workshop and the issue of how environmental degradation in arid, semiarid, and dry subhumid lands in the Mediterranean Region is related to human security, the organizers utilized a political construct for discussion which included six NATO Member countries, four NATO Partner countries, and seven countries that comprise the Mediterranean Dialogue in the Middle East and North Africa (Figure 1).

Geographically the area connects three continents, culturally it is the origin of three of the major world religions, and economically it once was the center of world civilization. Nevertheless, the region also has a long historical record of political, economical, and cultural division and subsequently a long period of human occupation and resource utilization.

Aside from the convenience of utilizing political borders as a framing boundary for discussion the true reality is that the appropriate spatial scale in which to deal with both the environment and security concerns may not necessarily be the nation-state. Desertification processes operate at multiple scales and although the discussion of this environmental issue occurs more frequently at the local or site level of scale where the knowledge base is greatest, the issue before this conference breaches across the entire region. Thus, the challenge before the conference assembly was to identify the linkages between the regional causes and physical processes of desertification and the consequences of past and future land use, especially as they relate to international security.

2. THE ENVIRONMENTAL SETTING

Desertification as defined as land degradation in arid, semiarid, and dry subhumid areas represents actual reduction or loss of biological and economic productivity caused by land-use change, physical process, or their combination. Although these ecosystems in the Mediterranean Region are vulnerable to numerous threats, including pollution from current or past anthropogenic activities, the overwhelming threat is from human population density and associated uncontrolled development. Subsequently this can lead to depletion or degradation of natural resources (water, soil, biota) and the situation of resource scarcity which can result in human migration. The issue is confounded by the fact that there are huge demographic differences between the North and South Mediterranean, which represent different socioeconomic disturbance gradients across the region.

In the past, issues of desertification and security in the Euro-Mediterranean area have been addressed as geographically and topically uncoupled subjects. Several previous conferences have been convened, which synthesized available information for their geographies, e.g., southern Europe, but not with the intent of integrating their approach across the region (Balabanis P., D. Peter, A. Ghazi, and M. Tsogas, 1999; Brandt, C.J. and J.B. Thornes, 1996; Briassoulis, H., M. Juntti, and G. Wilson, 2003; Burke, S. and J.B. Thornes, 1998; Geeson, N.A., C.J. Brandt, and J.B. Thornes (Eds.), 2002; Grenon, M. and M. Batisse, 1988; Grenon, M. and M. Batisse (Eds.), 1989; Mairota, P., J.B. Thornes, and N.A. Geeson (Eds.), 1998; Nasr, M., 2003). This is especially apparent within the United Nations Convention to Combat Desertification, which has divided its implementation strategy into separate annexes for Africa and the northern Mediterranean but provides no bridge to integrate the work or link across the Mediterranean Region (UNCCD Secretariat, Fact Sheet 11, 2002; UNCCD Secretariat, Fact Sheet 14, 2002).

Root causes of desertification have been identified as population growth and climate change which contribute to the nature and extent of environmental stress. Environmental stress represents both environmental degradation and scarcity of natural renewable resources. Both factors are interconnected and thus can affect each other and represent drivers for social, economic, and political consequences. Poverty, food insecurity, forced displacement, migration, impoverished health conditions, and disruption of social and political institutions (sometimes resulting in a catalyst for conflict) are considered the important consequences of environmental stress. Environmental stress associated with desertification is a dynamic process with various levels of intensity and has been associated with at least six input factors (Table 1) that act as key drivers for regional environmental change for the Mediterranean Region (Brauch, H.G., 2000).

3. THE SOCIOPOLITICAL SETTING

The relationship between environmental change, stress, and desertification in the Mediterranean Region relative to the issue of security has garnered increased importance as new challenges have emerged since the end of the Cold War. The question of the relationship between environment and security is now a common interest among both the scientific and policy communities especially as the traditional security concepts based on national sovereignty have been revisited following changes in the European political landscape at the end of the last century. The definition of security now at least incorporates nontraditional threats and their causes, including environmental stress, and social, economic, and environmental factors are now being factored into an evolving definition.

In addition to lost income (estimated annually at \$42 billion [USD] at the global level) for desertified areas, there are enormous social costs (UNCCD Secretariat, Fact Sheet 3, 2002). Desertification exacerbates water scarcity, famine, internal displacement of people, migration, and social breakdown and thus provides a prescription for political, social, and economic instability which can sometimes lead to tension between neighboring countries and armed conflict. It is a challenge for both scientists and decision-makers to include these considerations into the new definition of security especially considering that multiple factors can act alone or in combination to produce various impacts associated with human or natural disaster, migration, socio-political crises, or conflict (Figure 2).

The NATO Workshop on Desertification in the Mediterranean Region recognized the importance of understanding the linkages between the environment and security in the Mediterranean and hopefully has made some progress to that end. More importantly it represents a commitment for developing a Trans-Mediterranean mechanism for further discussion on this topic. At one level it represents an integration between scientific and diplomatic process. At another level it brings new hope and opportunity for environmental and societal stabilization to an area that has endured a long history of human occupation and environmental change.

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Table 1. Factors associated with regional environmental change within the Mediterranean Region (adapted from Brauch, 2003).

Variable <i>population growth</i> in the northern vs. southern Mediterranean
Impact of <i>climate change</i> due to increased temperatures and decline in precipitation
<i>Scarcity of water</i> for potable consumption and irrigation
<i>Decline in food production</i> and the increased dependence on imported goods, e.g., cereals
<i>Progressive soil erosion, salinization, and sodification</i>
<i>Increased urbanization</i> in major metropolitan areas



Figure 1. NATO-affiliated countries within the Mediterranean Region of southern Europe, North Africa, and the Middle East.

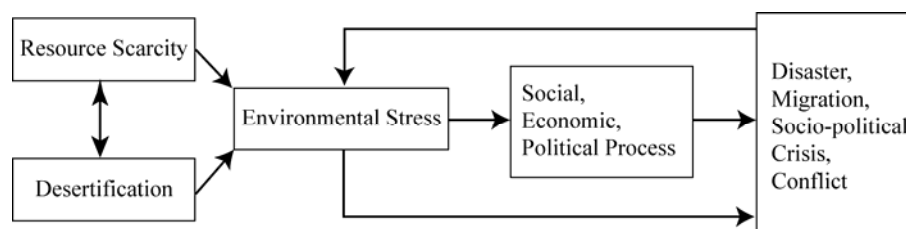


Figure 2. Conceptual relationship between environmental stress and social, economic, political, and demographic consequences (adapted from Brauch, 2003).